

Inhibitory phlorotannins from the edible brown alga *Ecklonia stolonifera* on total reactive oxygen species (ROS) generation

Kang HS, Chung HY, Kim JY, Son BW, Jung HA, Choi JS

ARCHIVES OF PHARMACAL RESEARCH

27 (2): 194-198 FEB 2004

Document type: Article **Language:** English

Abstract:

Reactive oxygen species (ROS) play an important role in the pathogenesis of many human degenerative diseases such as **cancer**, aging, arteriosclerosis, and rheumatism. Much attention has been focused on the development of safe and effective antioxidants. To discover sources of antioxidative activity in marine **algae**, extracts from 17 kinds of seaweed were screened for their inhibitory effect on total ROS generation in kidney homogenate using 2',7'-dichlorofluorescein diacetate (DCFH-DA). ROS inhibition was seen in three species: *Ulva pertusa*, *Symphyocladia latiuscula*, and *Ecklonia stolonifera*. At a final concentration of 25 $\mu\text{g/mL}$, *U. pertusa* inhibited 85.65 \pm 20.28% of total ROS generation, *S. latiuscula* caused 50.63 \pm 0.09% inhibitory, and the *Ecklonia* species was 44.30 \pm 7.33% inhibition. *E. stolonifera* OKAMURA (Laminariaceae), which belongs to the brown **algae**, has been further investigated because it is commonly used as a foodstuff in Korea. Five compounds, phloroglucinol (1), eckstolonol (2), eckol (3), phlorofucofuroeckol A (4), and dieckol (5), isolated from the ethyl acetate soluble fraction of the methanolic extract of *E. stolonifera* inhibited total ROS generation.